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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,574	02/17/2004	Juha Hujanen	ASMMC.032DV1	3049

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EXAMINER	
BERNATZ, KEVIN M	

ART UNIT	PAPER NUMBER
1773	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/781,574	HUJANEN ET AL.	
	Examiner	Art Unit	
	Kevin M. Bernatz	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *05 August 2005*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/5/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Amendments to the specification and claims 1 and 14, filed on August 5, 2005, have been entered in the above-identified application.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1 and 5 – 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Albert et al. (U.S. Patent No. 4,219,853) for the reasons of record as set forth in Paragraph No. 7 of the Office Action mailed on May 3, 2005.

4. Claims 1, 2, 5 – 7 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Okamoto (U.S. Patent No. 6,329,087 B1) for the reasons of record as set forth in Paragraph No. 8 of the Office Action mailed on May 3, 2005.

5. Claims 1 – 3 and 5 – 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Inoue et al. (U.S. Patent App. No. 2002/0145834 A1) for the reasons of record as set forth in Paragraph No. 9 of the Office Action mailed on May 3, 2005.

Claim Rejections - 35 USC § 103

6. Claims 4 and 14 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. as applied above, and further in view of applicants' admissions for the reasons of record as set forth in Paragraph No. 11 of the Office Action mailed on May 3, 2005.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. in view of applicants' admissions as applied above, and further in view of Okamoto ('087 B1) for the reasons of record as set forth in Paragraph No. 12 of the Office Action mailed on May 3, 2005.

8. Claims 3, 4, 8 – 10, 14, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamoto as applied above, and further in view of applicants' admissions for the reasons of record as set forth in Paragraph No. 13 of the Office Action mailed on May 3, 2005.

Response to Arguments

9. Examiner's Comment regarding "barrier layer"

Applicant(s) argue(s) that "the term barrier layer is a term of art and that the skilled artisan would understand that not all materials make suitable barrier layers" (*page 5 of response*). The examiner respectfully disagrees.

While certain materials may be preferable for barrier layers in conventional magnetic heads, the Examiner notes that the claims must be given the broadest reasonable interpretation(s) consistent with the written description in applicants' specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, applicants only disclose Ta as a barrier or barrier/seed layer (*Paragraph 20 of specification*) and the Examiner *is* utilizing the knowledge in the art to grant the term the scope of any non-magnetic material versus only the material disclosed by applicants (i.e. Ta). While the Examiner acknowledges that some non-magnetic materials may produce better barrier layer properties than others, applicants do not have support to limit the term to such a subset of materials (or even identification of which materials *would* be preferred).

10. The rejection of claims 1 – 17 under 35 U.S.C § 102(b), 102(e) and/or 103(a) – Various references

Applicant(s) argue(s) that "there are significant unobvious differences between ALD formed layers and layers formed by sputtering" (*page 6 of response*). The examiner respectfully disagrees.

The Examiner notes that the key word is *unobvious* with regard to the difference between a structure formed by sputtering versus ALD. Since applicants are claiming a product and not a method, the method must be shown to result in an *unobvious*

difference in structure. As even stated by applicants "[o]ne of skill in the art would recognize that ALD deposited layers inherently have significant structural differences from layers deposited by sputtering" (*page 6 of response*). If one of skill in the art "would recognize" these differences, then these differences are not *unobvious*. The Examiner further points to the cited Dimitrov et al. reference (U.S. Patent No. 6,700,752 B2), which clearly states "[t]he ALD process has low pinhole density, low impurity concentration and good step coverage" (*col. 8, lines 1 – 23*). The fact that ALD forms high density films with excellent surface coverage (read: low pinhole density) is well known in the art, as shown by Kim et al. (U.S. Patent No. 6,270,572 B1 – *Figure 13, col. 1, line 5 bridging col. 2, line 25; col. 6, lines 58 – 67; and col. 7, lines 13 – 56*) and Klaus et al. (J. Elec. Soc., 147(3), 1175-1181, 2000 – *page 1175, first and second columns*). As such, the Examiner does not find applicants' arguments convincing since the Examiner maintains that the structural differences between ALD and sputtered films are known in the art.

Should applicants desire to show unexpected results when using ALD sputtered films, applicants are reminded that (1) the claims must be commensurate in scope with the showing of unexpected results (e.g. the processing/structural conditions used to achieve the films showing the unexpected results) and (2) ***a detailed description of the reasons and evidence*** supporting a position of unexpected results must be provided ***by applicant(s)***. A mere pointing to data requiring the examiner to ferret out evidence of unexpected results ***is not sufficient*** to prove that the results would be truly unexpected to one of ordinary skill in the art. *In re D'Ancicco,* 439 F.2d 1244, 1248, 169

USPQ 303, 306 (1971) and *In re Merck & Co*, 800 F.2d 1091, 1099, 231 USPQ 375, 381 (Fed. Cir. 1986).

Applicants further argue that the admission of a variation in thickness of less than 2% in the specification is "not an admission that the benefits of such a thickness variation would have been known to one of skill in the art at the time the application was filed". The Examiner respectfully disagrees.

The Examiner notes that applicants clearly refer to this desired behavior in the background section discussing the prior art and explicitly state that "[d]esired characteristics for the thin film material in a read head gap including the following ... low film thickness variation, e.g., <2% for a film thickness of 20 nm". The Examiner further deems that it is obvious that one would want a uniform thickness across the film, since any non-uniformity will decrease the sensitivity of the head, especially when attempting to read extremely small domains prevalent in state-of-the-art high Gigabit recording media.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Bernatz, PhD
Primary Examiner

KMB
October 14, 2005